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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,290	03/27/2001	John A. Corey	21535-006	9240

35437 7590 04/25/2003

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EXAMINER

SCALTRITO, DONALD V

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 04/25/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,290

Applicant(s)

COREY ET AL.

Examiner

Donald V Scaltrito

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2001.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-36 and 40-48 is/are allowed.
- 6) ☒ Claim(s) 1, 16, 22, 24 and 37 is/are rejected.
- 7) ☒ Claim(s) 2-15, 17-21, 23, 38 and 39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

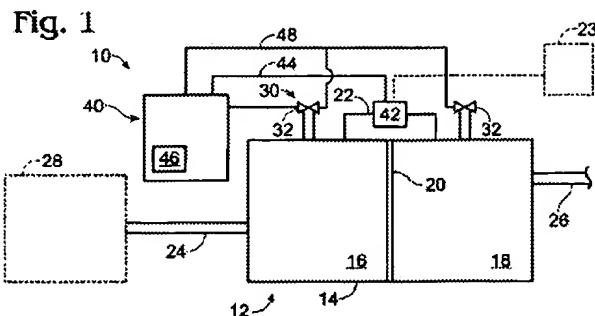
(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1, 16, 22, 24 & 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Herron (U.S. Patent No. 6,242,120).

Herron discloses a system for optimizing the purge cycle of a fuel cell stack that is in response to the performance of the fuel cell system. The system includes a controller that measures a process parameter indicative of the rate at which water is being produced in the fuel cell. If the measured value exceeds a threshold value, then the purge assembly is automatically actuated.

With respect to Claim 1, Herron discloses a fuel cell system that is provided with an anode chamber supplied with fuel, a cathode chamber supplied with oxidant, an electrolytic membrane separating the two chambers and a series of conduits that connects the anode and cathode chambers wherein two valves are disposed along the conduits for the purposes of governing fluid supply (see Figure 1 of this reference, shown below).



With respect to Claim 16, Herron discloses that the valves are opened to depressurize the fuel cells and exhaust built up gases (column 3, lines 36-40). With respect to Claim 22, Herron discloses measuring a value of a process parameter representative of the performance of a fuel cell stack (column 6, lines 36-46). It is well known to one of ordinary skill in the art that electricity generation is an important process of fuel cell system operation. With respect to Claim 24, it is well known to one of ordinary skill in the art that proton-conducting membranes are not electronically conducting.

With respect to Claim 37, Herron discloses a water management system in a fuel cell stack that is provided with an anode chamber supplied with fuel, a cathode chamber supplied with oxidant, an electrolytic membrane separating the two chambers and a series of conduits that connects the anode and cathode chambers wherein two valves are disposed along the conduits for the purposes of governing fluid supply.

This reference, therefore, anticipates Claims 1, 16, 22, 24 & 37 of the current application.

Allowable Subject Matter

Claims 25-36 & 40-48 are allowed. The following is an examiner's statement of reasons for allowance: With respect to Claim 25, the prior art of record fails to teach or suggest a method

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of reducing the amount of water in a cathode chamber of a fuel cell system by collecting an effluent gas in an anode chamber and then exhausting the effluent gas in the anode chamber through a cathode chamber. With respect to Claim 26, the prior art of record fails to teach or suggest a valve for controlling the flow of gas from an anode chamber into a cathode chamber wherein the effluent gas is exhausted through the cathode chamber. With respect to Claims 27-35, the prior art of record fails to teach a fuel cell system having an anode chamber, a cathode chamber and a proton-conducting membrane wherein the anode and cathode chambers are connected via conduits that have multiple valves and a gas plenum disposed along the conduits. With respect to Claim 36, the prior art of record fails to teach a direct methanol fuel cell system having an anode chamber, a cathode chamber and a proton-conducting membrane wherein the anode and cathode chambers are connected via conduits that have multiple valves and a gas plenum disposed along the conduits. Furthermore, the prior art of record fails to teach the flow of carbon dioxide gas from the anode chamber into the gas plenum and then from the gas plenum into the cathode chamber. With respect to Claim 40, the prior art of record fails to teach a method of reducing the amount of water in a fuel cell system wherein the flow of water is directed from the anode chamber into the gas plenum and then from the gas plenum into and through the cathode chamber. With respect to Claim 41, the prior art of record fails to teach or suggest a nozzle having an inlet position adjacent to a gas permeable membrane portion in a cathode chamber and an outlet positioned adjacent the outlet of the cathode chamber. With respect to Claims 45, the prior art of record fails to teach a method of reducing the amount of water in a fuel cell system wherein the flow of water is directed from the anode chamber into the

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gas plenum and then from the gas plenum into the cathode chamber while a low pressure region is established adjacent to the cathode outlet.

Claims 2-15, 17-21, 23, 38 & 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach a direct oxidation fuel cell system having an anode chamber, a cathode chamber and a proton-conducting membrane wherein the anode and cathode chambers are connected via conduits that have multiple valves and a gas plenum disposed along the conduits. Furthermore, the prior art of record fails to teach the flow of gases from the anode chamber into the gas plenum and then from the gas plenum into the cathode chamber.

Response to Arguments

Applicant's arguments filed on 25 February 2003 have been fully considered but they are not persuasive. Herron clearly states that purge valves are used to depressurize both the anode and cathode chambers of the fuel cell system (column 3, lines 36-39). Herron goes on to state that *any suitable valve* may be used and that only one of the anode and/or cathode chambers may be purged at a time (column 3, lines 42-48). Herron also clearly demonstrates fluid communication between the anode and cathode chambers via a conduit (48) which not only runs from the anode chamber to a controller (40), but also from the anode chamber to the cathode chamber. Therefore, it is not beyond the scope of this reference that, in the broadest possible

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manner, effluent gas from the anode chamber can be directed to the cathode chamber in a manner such that the gas flow is controlled by *any suitable valve*. The Examiner notes that in the applicant's response that an argument is made that nothing in Herron teaches or fairly suggests that the anode effluent gas is exhausted through the cathode chamber to reduce the amount of water that has built up in the cathode chamber. However, with respect to Claims 1 & 37, the claim language states "a first valve for controlling a first flow of gas from said anode chamber into said cathode chamber" and the claim language makes no mention of exhausting an effluent gas through the cathode chamber. More importantly, applicant's arguments are based solely on future intended use or processing steps, which are given little weight with respect to patentability. The reference's apparatus must merely be capable of performing the function to meet the claimed future function.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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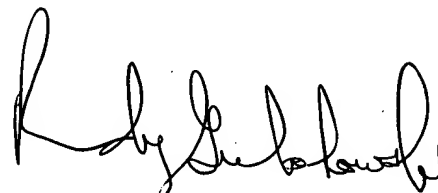
however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald Scaltrito, whose telephone number is 703.305.4926. The examiner can be reached in his office on Monday-Friday between the hours of 9am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, may be reached at 703.308.4333. The official fax number for the organization where this application or proceeding is assigned is 703.305.3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661

Donald Scaltrito
Patent Examiner
Art Unit 1746
April 16, 2003

A handwritten signature in black ink, appearing to read 'Randy Gulakowski', is positioned above the printed name and title.

RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700